



METACOGNITIVE ABILITIES OF POST GRADUATE AND UNDERGRADUATE STUDENTS: A COMPARATIVE STUDY

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ABSTRACT

This paper intends to compare the metacognitive abilities of post graduate and under graduate students. A sample of 170 students (86 post graduate and 84 under graduate) was selected through stratified random sampling technique from the Hyderabad City of Telangana State, India. For the sake of data collection, Meta Cognition Inventory (MCI) developed by Punita Govil was used. The mean, SD and t- test was employed to analyze the data. The result revealed that there is a significant difference between the metacognitive abilities of post graduate and under graduate students. Also, there is significant difference between the metacognitive abilities of post graduate and under graduate male students. However, there is no significant difference between the metacognitive abilities of post graduate and under graduate female students. Also, there is no significant difference between the metacognitive abilities of post graduate male and female students. It was found there is significant difference between the metacognitive abilities of under graduate male and female student.

KEY WORDS: Metacognitive abilities, Post graduate Students, Under graduate Students.

Introduction

Learning is a continuous process in which many psycho physical actions take part simultaneously. It is when the mental state of a person gets ready for learning that he starts learning. Certain variables on the side of the learner are required to obtain such a readiness. As far students are concerned, it is only when we think about the complexities of learning process that we recognize the importance of metacognition. Metacognition is referred as "thinking about thinking." It comes from the root word "meta", meaning beyond. It includes knowledge about when and how to use particular strategies for learning or for problem solving. According to Flavell (1976) metacognition is "...knowledge concerning one's own cognitive processes and products or anything related to them....". Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to cognitive object or data...." There are generally two components of metacognition: knowledge about cognition, and regulation of cognition. Meta cognitive knowledge can be described as what we know about our own cognitive processes and regulation of cognition includes all those mechanisms through which we regulate our thinking processes. "Metacognition involves awareness of how they learn, an evaluation of their learning needs, generating strategies to meet these needs and then implementing the strategies" (Hacker, 2009).

Meta-cognition plays an important role in communication, reading comprehension, language acquisition, social cognition, attention, self-control, memory, self-instruction, writing, problem solving, and personality development (Flavell, 1979). Meta-cognition includes at least three different types of meta-cognitive awareness. Declarative, procedural and conditional knowledge may all be considered subcomponents of meta-cognitive knowledge (Schraw and Moshman, 1995). Declarative knowledge refers to knowledge about oneself as a learner and about what factors can influence one's performance. Procedural knowledge refers to knowledge about doing things. A high degree of procedural knowledge can allow individuals to perform tasks more automatically. Conditional knowledge refers to knowing when and why to use declarative and procedural knowledge. It allows students to allocate their resources when using strategies.

Review of literature shows that the meta-cognition of the students of different stages are not alike. There is a variation between the metacognition of students according to various other personal and other factors. Pintrich (2002) asserts that students who know about the different kinds of strategies for learning, thinking, and problem solving will be more likely to use them. Bigozzi & Vezzani (2005) found that individual writing enhances the use of meta- cognitive terms and the frequency of use regarding terms. Jayaprabha and Kanmani (2013) concluded that cooperative learning could be adopted regularly in classroom to enhance metacognitive awareness of higher secondary students. Jagadeeswari & Chandrasekaran (2013) revealed that there is a significant difference in the metacognitive awareness among the senior secondary student based on their gender and type of school management. Sajna and Premachandran (2015) found that there is no significant difference in the metacognitive awareness of secondary school students based on their locale, gender and type of management of the school. Sawhney et al. (2015) reported that there is a significant and positive relationship between student's academic performance and metacognitive awareness. Sabna & Hameed (2016) revealed that there exist significant difference between metacognitive awareness based on gender and locale.

Meta-cognition of the students varies according to their developmental stages. Meta cognition of the children may not be like that of the adolescents. It also varies according to the educational atmosphere that each student is being provided with. There will be clear difference between how different students are approaching a problem and exploring the solution. As the students of post graduate courses and under graduate course are of rich experiences, the researcher finds it interesting to conduct a study about the metacognitive abilities of post graduate and undergraduate students. It is only when a student possesses the different types of metacognitive awareness that he reaches the correct channel to carry on his study activities. The researcher hopes that the findings of the present study will help most prominently the teachers of higher education to explore new strategies to handle their students. It will also be helpful to the students of higher education to have a glance at their status regarding the metacognition and make timely intervention for improvement.

Objectives

1. To know the metacognitive abilities of post graduate and under graduate students.
2. To find out the metacognitive abilities of post graduate and under graduate male students.
3. To compare the metacognitive abilities of post graduate and under graduate female students.
4. To study the metacognitive abilities of post graduate male and female students.
5. To know the metacognitive abilities of under graduate male and female students.

Hypotheses

1. There will be no significant difference between the metacognitive abilities of post graduate and under graduate students.
2. There will be no significant difference between the metacognitive abilities of post graduate and under graduate male students.
3. There will be no significant difference between the metacognitive abilities of post graduate and under graduate female students.
4. There will be no significant difference between the metacognitive abilities of post graduate male and female students.
5. There will be no significant difference between the metacognitive abilities of under graduate male and female students.

Methodology

In the present study, the survey type descriptive research method is adopted. A sample of 170 students (86 post graduate and 84 under graduate) was selected through stratified random sampling technique from the 10 colleges (4 PG & 6 UG) of Hyderabad City of Telangana State, India. For the sake of data collection,

Meta-cognition Inventory (MCI) developed by Punita Govil was used. The test battery consists of 30 items. This tool measures the cognitive processes and regulation of cognition. After collection of the data, the scoring was done according to the scoring procedure given in manual of the scale. The mean, SD and t- test was employed to analyze the data.

Results and Discussion

- To verify the first hypothesis, the mean score of the metacognitive abilities of post graduate and under graduate students, the two groups are subjected to t-test and the results are presented in the table-1.

Table - 1
Significant difference between the metacognitive abilities of post graduate and under graduate students

Group Compared	N	Mean	SD	df	Calculated t-value at 0.05	Tabulated t-value at 0.05	of significance
Post graduate students	86	84.44	9.48	168	2.81	1.98	Significant
Under graduate students	84	78.29	9.77				

It could be observed from the table -1 that the mean score of post graduate students is 84.44 with an SD of 9.48, while the mean of under graduate students is found to be 78.29 with an SD of 9.77. The calculated t-value is 2.81 and the tabulated t-value is 1.98. Since, the calculated t-value is more than tabulated t-value which is significant at 0.05 levels. Hence, the null hypothesis, 'There will be no significant difference between the metacognitive abilities of post graduate and under graduate students,' is rejected. Thus, it is concluded that there is significant difference between the metacognitive abilities of post graduate and under graduate students. Post graduate students are found to have significantly better metacognitive abilities than under graduate students.

- To verify the second hypothesis the mean score of the metacognitive abilities of post graduate and under graduate male students, the two groups are subjected to t-test and the results are presented in the table-2.

Table - 2
Significant difference between the metacognitive abilities of post graduate and under graduate male students

Group Compared	N	Mean	SD	df	Calculated t-value at 0.05	Tabulated t-value at 0.05	of significance
Post graduate male students	42	81.36	9.20	80	3.69	1.99	Significant
Under graduate male students	40	73.88	9.11				

As seen from the table - 2, it can be observed that the mean score of post graduate male students is 81.36 with an SD of 9.20, while the mean of under graduate students is found to be 73.88 with an SD of 9.11. The calculated t-value is 3.69 and the tabulated t-value is 1.99. Since, the calculated t-value is more than that of tabulated t-value which is significant at 0.05 levels. Hence, the null hypothesis, 'There will be no significant difference between the metacognitive abilities of post graduate and under graduate male students,' is rejected. Thus, it is concluded that there is significant difference between the metacognitive abilities of the post graduate and under graduate male students. Post graduate students are possessing better metacognitive abilities in compare to under graduate students.

- To verify the third hypothesis the mean score of the metacognitive abilities of post graduate and under graduate female students, the two groups are subjected to t-test and the results are presented in the table-3.

Table - 3
Significant between the metacognitive abilities of post graduate and under graduate female students

Group Compared	N	Mean	SD	df	Calculated t-value at 0.05	Tabulated t-value at 0.05	of significance
Post graduate female students	44	83.48	9.73	86	0.60	1.99	Not Significant
Under graduate female students	44	82.30	8.63				

From the table - 3, it can be observed that the mean score of post graduate female students is 83.48 with an SD of 9.73, while mean of under graduate female students is found to be 82.30 with an SD of 8.63. The calculated t-value is 0.60 and the tabulated t-value is 1.99. Since, the calculated t-value is less than tabulated t-value which not significant at any levels. Hence, the null hypothesis, 'There will be no significant difference between the metacognitive abilities of post graduate and under graduate female students,' is accepted. Thus, it is concluded that there is no significant difference between the metacognitive abilities of the post graduate and under graduate female students.

- To verify the fourth hypothesis the mean score of the metacognitive abilities of post graduate male and female students, the two groups are subjected to t-test and the results are presented in the table-4.

Table - 4
Significant difference between the metacognitive abilities of post graduate male and female students

Group Compared	N	Mean	SD	df	Calculated t-value at 0.05	Tabulated t-value at 0.05	of significance
Post graduate male students	42	81.36	9.20	84	1.03	1.99	Not Significant
Post graduate female students	44	83.48	9.73				

As seen from the table - 4, the mean score of post graduate male students is 81.36 with an SD of 9.20, while mean of post graduate female students is found to be 83.48 with an SD of 9.73. The calculated t-value is 1.03 and the tabulated t-value is 1.99. Since, the calculated t-value is less than tabulated t-value which is not significant at any levels. Hence, the null hypothesis, 'There will be no significant difference between the metacognitive abilities of post graduate male and female students,' is accepted. Thus, it is concluded that there is no significant difference between the metacognitive abilities of the post graduate male and female students.

- To verify the fifth hypothesis the mean score of the metacognitive abilities of under graduate male and female students, the two groups are subjected to t-test and the results are presented in the table-5.

Table - 5
Significant difference between the metacognitive abilities of under graduate male and female students

Group Compared	N	Mean	SD	df	Calculated t-value at 0.05	Tabulated t-value at 0.05	of significance
Under graduate male students	40	73.88	9.11	82	4.34	1.99	Significant
Under graduate female students	44	82.30	8.63				

It could be observe from the table -5 that the mean score of under graduate male students is 73.88 with an SD of 9.11, while the mean of under graduate female students is found to be 82.30 with an SD of 8.63. The calculated t-value is 4.34 and the tabulated t-value is 1.99. Since, the calculated t-value is more than tabulated t-value and which is found to be significant at 0.05 levels. Hence, the null hypothesis

esis, 'There will be no significant between the metacognitive abilities of under graduate male and female students,' is rejected. Thus, it is concluded that there is significant difference between the metacognitive abilities of the under graduate male and female students. Under graduate female students are found to have significantly better metacognitive abilities than their male counterparts.

Findings of the Study

- There is significant difference between the metacognitive abilities of post graduate and under graduate students. Post graduate students possess higher metacognitive abilities as compared to under graduate students.
- There is significant difference between the metacognitive abilities of post graduate and under graduate male students. Metacognitive abilities of post graduate male students are higher than under graduate students.
- There is no significant difference between the metacognitive abilities of post graduate and under graduate female students.
- There is no significant difference between the metacognitive abilities of post graduate male and female students.
- There is significant difference between the metacognitive abilities of under graduate male and female students. Under graduate female students are found to have significantly higher metacognitive abilities than their male counterparts.

Conclusion and Educational Implication

Metacognitive abilities play a very vital role in effective teaching and learning process. It includes individual's knowledge of their own cognitive processes and their ability to control these processes by organizing, monitoring and modifying them as a function of learning. It refers to the ability to reflect upon the task demand and independently select and employ the appropriate reading, writing, mathematics or learning strategy. Hence, it is the responsibility of administration of the educational institutions to create a favourable, conducive and congenial environment in the school and college campus to use and develop the metacognitive abilities of the students and teachers by providing all the required facilities in terms of human and physical resources. It is also important on the part of teachers that they should promote the classroom activities which are helpful for the students to use and enhance their metacognitive abilities.

The findings of the study shows that post graduate students possess higher metacognitive abilities as compared to under graduate students. This indicates that post graduate students are getting more opportunities with regard to classroom teaching and learning environment to use and develop their metacognitive abilities. Thus, there is a need to provide ample guidance and direction to the undergraduate students to identify and utilize their metacognitive abilities in the process of learning. Teachers should use innovative teaching methods that should develop the learning activities and helpful in arousing and developing the metacognitive abilities of the students. For this purpose, group work, discussion, reflection, evaluation, revision, problem solving method, using particular strategy for learning, and content analysis etc. should be encourage among students which will positively improve their metacognitive abilities. Also, teachers should know the individual differences of the students in terms of their metacognitive abilities and adapt appropriate teaching methods and strategies in the class room accordingly. This will not only be helpful for teachers to deal effectively in the class room, but also for the students to know how they learn and identify their strengths and weaknesses so that can work on it and they may identify and adapt the most effective methods of learning to become a successful person in the society.

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